AUBURN
MONTGOMERY

November 17, 2017

Dr. James Purcell
Executive Director
Alabama Commission on Higher Education
P.O. Box 302000
Montgomery, AL 36120-2000

Dear Dr. Purcell:

Please find enclosed Auburn University at Montgomery's proposal for a Master of Science in Computer Science. It is our desire that the proposal be considered at the March 2018 meeting of the Alabama Commission on Higher Education. The proposal has been submitted electronically to Margaret Pearson of the Alabama Commission on Higher Education and to Mary Anne Templeton, chairwoman of the Alabama Council of Graduate Deans (ACGD). Please contact Dr. Matthew Ragland, Associate Provost, if you have any suggestions or questions.

Sincerely,

Mrinal Mugkh

Dr. Mrinal Varma
Provost
Auburn University at Montgomery

Enclosures (1)

AUBURN UNIVERSITY AT MONTGOMERY
Office of the Provost
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Alabama Commission on Higher Education

PROPOSAL FOR A NEW DEGREE PROGRAM – NEW APPLICATION TOOL

Please check one: [ ] Baccalaureate Program [X] Graduate Program

A. General Information

1. **Institution:** Auburn University at Montgomery

2. **Institutional Contact Person:**
   Dr. Matthew Ragland
   Title: Associate Provost for Graduate Studies and Faculty Services
   Telephone: 334-244-3138
   E-mail: mragland@aum.edu

3. **Program Identification--**
   Field of Study/ Program Title: Computer Science
   Degree: Master of Science
   CIP Code: 11.0701

4. **Date of Proposal Submission:** 11-17-2017

5. **Proposed Program Implementation Date:** Fall 2018

6. **Program Administration:**
   Name of College/School: College of Arts and Science
   Name of Dean: Dr. Matthew Ragland (Acting Dean)
   Name of Department: Mathematics and Computer Science
   Name of Chair: Dr. Yi Wang

Note: Please expand all response fields as necessary.

B. Program Purpose and Description

1. In no more than one paragraph describe the purpose of the proposed program. Please also include a brief statement regarding how the program's purpose is related to the University's mission and goals.

The proposed program will give students specialized preparation in the broad area of Computer Science with four concentrations: a) General Computer Science, b) High Performance Computing, c) Data Analytics, and d) Computer and Cybersystems Security. The program will prepare graduate-level computer scientists for the growing computing industry of greater Montgomery, Alabama and beyond. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area. This new program aligns with AUM's mission of providing current, relevant and modern graduate academic programs to its constituents in the central Alabama region and neighboring counties. Also, the new program will promote and encourage research efforts as well as collaboration with the local and regional industry and government.

2. Please provide a description of the specific kinds of employment opportunities, post-graduate professional degree programs, and other graduate programs that will be available to the graduates.

After graduation students can advance their careers as computer professionals by taking various job positions in the computing industry, research centers, government and academia. Specific employment opportunities include, but are not limited to, Computer and Information System Managers, Computer and Information Security Analysts, System and Application Software Developers, System Analysts, Data Center Administrators, Data Analysts, and Computational Scientists. Also, students will have the theoretical and practical preparation for continuing their education towards doctoral studies in areas of Computer Science, Computational Science, Modeling and Simulation and Applied Mathematics.

3. Succinctly list at least four (4) but no more than seven (7) of the most prominent *student learning outcomes* of the program. These outcomes should lend themselves to subsequent review and assessment of program accomplishments.

1) Students will be able to evaluate and apply advanced Computer Science concepts in the following core areas: Algorithms Design and Analysis, Systems, Software Engineering, and Database Systems.

2) Students will be able to apply computing knowledge efficiently in order to solve practical problems.

3) Students will master the theory, methods and best practices from their corresponding concentrations.

4) Students will apply relevant algorithmic and mathematical concepts to the design and analysis of software.

5) Students will demonstrate effective teamwork resulting to design and implement solutions to computational problems.

C. Need for the Program

1*. State need.* Briefly describe why the program is specifically needed for the State of Alabama. (State need is considered a priority in the review process.)

In order to compete regionally and nationally and to benefit its communities, the state of Alabama needs to continue its development, growth and sustainability of a technology-based economy. For this end the state of Alabama should promote education, training and development of highly-qualified human resources in the computing fields. For example, in the Montgomery area, efforts by the city in partnership with Maxwell Air Force Base and various state and private organizations made possible the establishment of the Montgomery Internet Exchange (MIX). MIX is an Internet technology that provides high speed internet access unique in the Southeast region (the first in Alabama and fourth in the southeast) [3]. Having the MIX in central Alabama provides opportunities to develop, create and attract businesses and services around it. However, the highly-qualified human resources that will be needed to support these enterprises are not guaranteed. The proposed M.S. in Computer Science aims to provide a sustained flow of qualified human resources in the computing field, which will be needed in Montgomery and the River Region.

2. *Employment Opportunities.* Based on your research on the employment market for graduates of this program, please complete the following table reporting the total projected job openings (including both growth and replacement demands) in your local area, the state, the SREB region, and the nation. These job openings should represent positions that require graduation from a program such as the one proposed.

Based on the Alabama High Demand Occupations 2012-2022 provided by the Alabama Department of Labor [2], computer related occupations will have strong growth. Examples are the following occupations as stated in the above report:

OCCUPATIONS	Employment 2012	Employment 2022	Change (%)	Average Annual Growth (%)	Average Annual Openings
Computer Systems Analysts	5,840	7,400	26.58	2.40	245
Software Developers, Applications	3,740	4,630	23.82	2.16	135

Software Developers, System Software	3,430	4,180	21.82	2.00	120
Computer User Support Specialists	7,390	9,310	25.85	2.34	305
Information Security Analysts	1,030	1,360	31.95	2.82	50
Computer and Information System Managers	2,930	3,500	19.47	1.79	100
TOTAL	**24,360**	**30,380**	**24.71**	**2.23**	**955**

Also, according to the Projections Central: State Occupational Projections (PCSOP) http://www.projectionscentral.com/Home/Index website (referred by the U.S. Bureau of Labor Statistics) the average annual openings and average 5-year openings of computer related jobs from 2014 to 2024 are summarized in the following table:

	Average annual openings	**Average 5-year openings**
Alabama	1,140	5,700
SREB	48,810	244,050
US	108,380	541,900

Career and College Readiness/Preparation -- Projected Job Openings

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Local (Central AL, data obtained from AL DOL 2014-2024 projection)	145	145	145	145	145	725
AL State(data from PCSOP 2014-2024 projection)	1,140	1,140	1,140	1,140	1,140	5,700
SREB(data from PCSOP 2014-2024 projection)	48,810	48,810	48,810	48,810	48,810	244,050
Nation(data from PCSOP 2014-2024	108,380	108,380	108,380	108,380	108,380	541,900

projection)						

Please briefly describe your methodology for determining employment opportunities – projected job openings. Be sure to cite any data sources used in formulating these projections. The actual survey instrument, detailed results, and associated data file(s) must be maintained internally by the institution for five years from the implementation date. The survey upon which the proposal is based must be available for ACHE Staff examination upon request for that five year timeframe. The survey instrument, detailed results, or associated data file(s) should not be included in the proposal.)

The local (central AL region) projected job openings are calculated from the projection data obtained from AL Department of Labor for the year 2014-2024. The average number of annual openings for all computer occupations is 145. We use this number for each year in the next five year period for simplicity.

The projected job openings for the state of AL, the SREB and the nation are calculated from the employment data available at the Projections Central: State Occupational Projections (PCSOP) http://www.projectionscentral.com/Home/Index website (referred by the U.S. Bureau of Labor Statistics). The average annual openings for the state of AL, the SREB and the nation are respectively 1,140, 48, 810, and 108,380. We use these numbers for each year of the next five-year period for simplicity.

3. *Student Demand - Enrollment projection.* Please briefly describe your methodology for determining enrollment projections. If a survey of student interest was conducted, *please briefly describe the survey instrument, number and percentage of respondents, and summary of results.*
(The survey instrument, and associated data file(s) need not be included in the proposal. This proposal information should be maintained for ACHE Staff review for five years from the actual implementation date.)

A survey of AUM student interest was conducted using both on-line and paper-based survey with 5 questions. The target population was AUM students majoring in Mathematics, Computer Science and pre-engineering. We received 61 and 49 responses from on-line and paper-based surveys respectively.

Questions:	paper-based	on-line	**Total**	
1) What is your major?				
Computer Science	30	43	**73**	**(66%)**
Mathematics	4	12	**16**	**(15%)**
Pre-Engineering	9	6	**15**	**(14%)**
Others	6	0	**6**	**(5%)**
Total	49	61	110	

2) Are you interested in pursuing a Master Degree after you obtain your bachelor degree?

Yes	37	45	**82**	**(75%)**
No	12	16	**28**	**(25%)**

3) Do you think that a Master degree can give you more job opportunities?

Yes	35	54	**89**	**(96%)**
No	1	3	**4**	**(4%)**

4) Are you interested in pursuing a Master degree in Computer Science?

Yes	27	33	**60**	**(65%)**
No	8	24	**32**	**(35%)**

5) Will you be interested in enrolling in a Master degree program in Computer Science at AUM?

Yes	25	28	**53**	**(56%)**
No	12	29	**41**	**(44%)**

The main result is that 65% of the students are interested in pursuing an M.S. in Computer Science degree and **56%** are interested in enrolling at AUM for such a degree. If 10-12 students graduate from AUM's B.S. in Computer Science degree annually, then we would expect that 5-6 of them will continue to the M.S. degree.

Enrollment projection: Based on the survey mentioned above and the current trend of enrollment in our B.S. in Computer Science program (31 in Fall 2014, 78 in Fall 2015, 128 in Fall 2016, and 160 in Fall 2017), we envision the following enrollment projection:

	Year 1	Year 2	Year 3	Year 4	Year 5	5-year average
Total Headcount	4	10	12	16	20	12.4
New Headcount	4	6	6	8	9	6.6
Graduates Headcount	0	4	4	5	7	4

D. Specific Rationale (Strengths) for Program

What is the specific rationale (strengths) for recommending approval of this proposal? List no fewer than three (3) and no more than five (5) potential program strengths.

The proposed M.S. in Computer Science is different from other programs offered in the state due to its options: High Performance Computing and Data Analytics, which are not similar to any other program. High Performance Computing and Data Analytics are unique options/concentrations for an M.S. in Computer

Science program in the state of Alabama. The proposed program is unique in the central region of Alabama and the main strengths of the proposed program are:

1. Strong theoretical Computer Science foundations with extensive practical applications.

2. Modern program, which considers in its curriculum the latest developments in computer technologies and mathematical theories.

3. Provides relevant concentrations for preparing students in areas of high demand such as High Performance Computing, Data Analytics, and Cybersecurity.

Please note that letters of support may be included with the proposal.

The following letters appear at the end of the proposal:

1. Letter of support from the President, Montgomery Area Chamber of Commerce
2. Letter of support from the VP and Chief Actuary of Alfa Insurance
3. Letter of support from the General Manager, Water Works and sanitary Sewer Board of the City of Montgomery
4. Letter of support from Director, Bureau of Information Technology, AL Department of Public Health.
5. Letter of support from the President, SHERLOCK, SMITH & ADAMS, Inc.
6. Letter of support from the President, Regitar U.S.A. Inc.
7. Letter of support from the President, The Dunn Training and Consulting, Inc.
8. Letter of support from the President, ValiData, Computer and Research Co.
9. Letter of support from the Chief Engineer, Structural Wood Systems

E. Similar Programs

Using the ACHE Academic Program inventory found at http://www.ache.state.al.us/Content/Departments/Instruction/StudentInfo.aspx

List below all programs at the same degree level (by institution) that utilize the same 6-digit CIP code as the one being requested in the program proposal.

There are no other programs at the same degree level in Alabama that utilize the same CIP code used by this proposed program (110701).

Also, list any programs at other CIP codes that may be offering similar instruction.

If there are no similar programs place a "0/none" by 1. in the listing directly below.

Note: Institutions should consult with ACHE Staff during the NISP phase of proposal development to determine what existing programs are considered duplicative of the proposed program.

The following institutions offer similar programs at this level in Alabama:

University	Degree	Field	CIP
Troy University	Master of Science	Computer Science (Troy, Montgomery)	110101
University of Alabama	Master of Science	Computer Science	110101
Auburn University	Master of Science	Computer Science and Engineering	140901
Alabama A&M University	Master of Science	Computer Science	110101
Jacksonville State University	Master of Science	Computer Systems and Software Design	110101
University of Alabama at Birmingham	Master of Science	Computer and Information Sciences	110101
University of Alabama at Huntsville	Master of Science	Computer and Information Sciences	110101
University of South Alabama	Master of Science	Computer and Information Sciences	110101

The proposed program is in CIP110701, different from any other M.S. in Computer Science programs, which have either CIP 110101 or CIP140901. The proposed M.S. in Computer Science is different from other programs offered in

the state due to its options: High Performance Computing and Data Analytics, which are not similar to any other program. High Performance Computing and Data Analytics are unique options/concentrations for an M.S. in Computer Science program in the state of Alabama.

Please add numeration and list additional similar programs, if applicable.

If the program duplicates, closely resembles, or is similar to another program already offered in the State, provide justification for that duplication.
Also, if a graduate program, please identify and list any similar programs at institutions in other SREB states.

Institutions in the Southern Regional Education Board (SREB) states that offer similar programs are listed below.

Arkansas

University	Degree	Field	CIP
Arkansas State University Jonesboro	Master of Science	Computer Science	110101
Southern Arkansas University - Magnolia	Master of Science	Computer and Information Sciences	110101
University of Arkansas Fayetteville	Master of Science	Computer Science	110101
University of Arkansas at Little Rock	Master of Science	Computer Science	110101
University of Arkansas at Pine Bluff	Master of Science	Computer Science and Technology	110101
University of Central Arkansas	MS/BS (5 year)	Computer Science/Applied Computing	110701

Delaware

University	Degree	Field	CIP
University of Delaware	Master of Science	Computer Science	NA
Delaware State University	Master of Science	Computer Science	NA

Florida

University	Degree	Field	CIP
Florida A&M University	Master of Science	Computer Science and Information Sciences	110101
Florida Atlantic University	Master of	Computer Science and Information	110101

	Science	Sciences	
Florida International University	Master of Science	Computer Science and Information Sciences	110101
Florida International University	Master of Science	Computer Systems Analysis	110501
Florida State University	Master of Science	Computer Science and Information Sciences	110101
University of Central Florida	Master of Science	Computer Science and Information Sciences	110101
University of Central Florida	Master of Science	Computer and Information Sciences	110199
University of Florida	Master of Science	Computer Science and Information Sciences	110101
University of Florida	Master of Science	Computer Systems Analysis	110501
University of North Florida	Master of Science	Computer Science and Information Sciences	110101
University of South Florida, Tampa	Master of Science	Computer Systems Analysis	110501
University of South Florida, Tampa	Master of Science	Computer Science	110701
University of West Florida	Master of Science	Computer Science and Information Sciences	110101

South Carolina

University	Degree	Field	CIP
College of Charleston	Master of Science	Computer and Information Systems	110701
The Citadel	Master of Science	Computer and Information Systems	110701
Clemson	Master of Science	Computer Science	110101

Virginia

University	Degree	Field	CIP
College of William and Mary	Master of Science	Computer and Information Systems	110101
George Mason University	Master of Science	Computer and Information Systems	110101

George Washington University	Master of Science	Computer and Information Systems	110101
Hampton University	Master of Science	Computer and Information Systems	110101
James Madison University	Master of Science	Computer and Information Systems	110101
Norfolk State University	Master of Science	Computer and Information Systems	110101
Old Dominion University	Master of Science	Computer and Information Systems	110101
University of Virginia	MCS/MS	Computer and Information Systems	110101
Virginia Commonwealth University	Master of Science	Computer and Information Systems	110101
Virginia Tech	Master of Science	Computer and Information Systems	110101

Tennessee

University	Degree	Field	TN-CIP
Middle Tennessee State University	Master of Science	Computer Science	0611070100
Tennessee State University	Master of Science	Computer Science	0611070100
Tennessee Technological University	Master of Science	Computer Science	0611070100
University of Memphis	Master of Science	Computer Science	0611070100
University of Tennessee, Chattanooga	Master of Science	Computer Science	0611070100
University of Tennessee, Knoxville	Master of Science	Computer Science	0611070100

Georgia

University	Degree	Field	CIP
Columbus State University	Master of Science	Applied Computer Science	11010101
Georgia Southern University	Master of Science	Computer Science	11070100
Georgia Southwestern State University	Master of Science	Computer Science	11070100

Kennesaw State University	Master of Science	Computer Science	11070100
Southern Polytechnic State University	Master of Science	Computer Science	11070100
University of West Georgia	Master of Science	Applied Computer Science	11070100
Georgia State University	Master of Science	Computer Science	11070100
Armstrong State University	Master of Science	Computer and Information Sciences	11010100
Georgia Institute of Technology	Master of Science	Computer Science	11010101

Kentucky

University	Degree	Field	CIP
Northern Kentucky University	Master of Science	Computer Science	110701
University of Kentucky	Master of Science	Computer Science	110101
University of Louisville	Master of Science	Computer Science	140901
Western Kentucky University	Master of Science	Computer Science	110101

Louisiana

University	Degree	Field	CIP
Louisiana Tech University	Master of Science	Computer Science	110701
LSU and A&M College	Master of Science	Computer Science	110701
Southern University and A&M College	Master of Science	Computer Science	110701
University of Louisiana at Lafayette	Master of Science	Computer Science	110701
University of New Orleans	Master of Science	Computer Science	110701

Maryland

University	Degree	Field	CIP

Bowie State University	Master of Science	Computer Science	NA
Capitol Technology University	Master of Science	Computer Science	NA
Frostburg State University	Master of Science	Applied Computer Science	NA
Hood College	Master of Science	Computer Science	NA
Johns Hopkins University	Master of Science	Computer Science	NA
Loyola University Maryland	Master of Science	Computer Science	NA
Towson University	Master of Science	Computer Science	NA
University of Maryland, Eastern Shore	Master of Science	Applied Computer Science	NA
University of Maryland, College Park	Master of Science	Computer Science	NA
University of Maryland, Baltimore County	Master of Science	Computer Science	NA

Mississippi

University	Degree	Field	CIP
Jackson State University	Master of Science	Computer Science	110101
Mississippi State University	Master of Science	Computer Science	110101
University of Southern Mississippi	Master of Science	Computer Science	110101

North Carolina

University	Degree	Field	CIP
NC State University	Master of Science	Analytics	110802
NC State University	Master of Science	Computer Networking	110901
NC Agricultural and Technical State University	Master of Science	Computer Science	110701
UNC Greensboro	Master of	Computer Science	110701

	Science		
UNC Charlotte	Master of Science	Computer Science	110701
UNC Chapel Hill	Master of Science	Computer Science	110701
NC State University	Master of Science	Computer Science	110701
East Carolina University	Master of Science	Computer Science	110701
Appalachian State University	Master of Science	Computer Science	110701
UNC Wilmington	Master of Science	Computer Science and Information Systems	110101
Winston-Salem State University	Master of Science	Computer Science and Information Technology	110101
UNC Charlotte	Master of Science	Cybersecurity	111003
Appalachian State University	Master of Science	Data Analytics	110802
UNC Wilmington	Master of Science	Data Science	110802

Oklahoma

University	Degree	Field	CIP
Oklahoma State University	Master of Science	Computer Science	110101
The University of Tulsa	Master of Science	Computer Science	110101
University of Oklahoma	Master of Science	Computer Science	110101

Texas

University	Degree	Field	CIP
Baylor University	Master of Science	Computer Science	11070100
Lamar University	Master of Science	Computer Science	11070100
Midwestern State University	Master of Science	Computer Science	11010100

Prairie View A&M University	Master of Science	Computer Science	11010100
Rice University	Master of Science	Computer Science	11070100
Sam Houston State University	Master of Science	Computer Science	11010100
Southern Methodist University	Master of Science	Computer Science	11070100
St. Mary's University	Master of Science	Computer Science	11070100
St. Mary's University	Master of Science	Computer Science and Engineering	11010200
Texas A&M University	Master of Science	Computer Science	11070100
Texas A&M University-Commerce	Master of Science	Computer Science	11010100
Texas A&M University-Corpus Christi	Master of Science	Computer Science	11010100
Texas A&M University-Kingsville	Master of Science	Computer Science	11010100
Texas Southern University	Master of Science	Computer Science	11070100
Texas State University	Master of Science	Computer Science	11070100
Texas Tech University	Master of Science	Computer Science	11010100
The University of Texas at Arlington	Master of Science	Computer Science	11010100
The University of Texas at Arlington	Master of Science	Computer Science and Engineering	14090100
The University of Texas at Austin	Master of Science	Computer Science	11010100
The University of Texas at Dallas	Master of Science	Computer Science	11010100
The University of Texas at El Paso	Master of Science	Computer Science	11010100
The University of Texas at San Antonio	Master of Science	Computer Science	11010100
The University of Texas at	Master of	Computer Science	11010100

Tyler	Science		
The University of Texas of the Permian Basin	Master of Science	Computer Science	11010100
The University of Texas Rio Grande Valley	Master of Science	Computer Science	11070100
University of Houston	Master of Science	Computer Science	11010100
University of Houston, Clear Lake	Master of Science	Computer Science	11070100
University of Houston, Victoria	Master of Science	Computer Science	11070100
University of North Texas	Master of Science	Computer Science	11010100
North American University, Houston	Master of Science	Computer Science	11070100

West Virginia

University	Degree	Field	CIP
Marshall University	Master of Science	Computer Science	110101
West Virginia University	Master of Science	Computer Science	110701

F. Collaboration With Other Institutions/Agencies

Does the institution plan on collaborating with other institutions in the delivery of this program?

☐ Yes No ☒ X

If yes, please indicate below which institutions and describe the basis of this collaboration.

If no, please indicate your reasons why.

There is no collaboration plan at this time. However, in the future as the program evolves and teaching and research expertise is developed we will consider collaboration.

G. Curriculum

1. Program Completion Requirements: (Enter a credit hour value for all applicable components, write N/A if not applicable)

Credit hours required in major courses _____

Credit hours required in minor	_____
Credit hours in institutional general education or core curriculum	___18___
Credit hours required in support courses	____9____
Credit hours in required or free electives	____6___
Credit hours for thesis or dissertation	____6___
Total credit hours required for completion	___33___

M.S. in Computer Science Curriculum

Core Courses (18 credit hrs.)

CSCI 6000 Algorithms Design and Analysis
CSCI 6050 Software Engineering
CSCI 6070 Advanced Database Systems
CSCI 6150 Operating Systems
CSCI 6170 Advanced Network Systems
CSCI 6250 Computer Architecture

Concentration 1: High performance Computing (HPC) (9 credit hrs.)

CSCI 6300 Advanced High Performance Computing
CSCI 6350 Distributed Systems
CSCI 6400 Advanced Data Intensive Computing

Concentration 2: Data Analytics (9 credit hrs.)

CSCI 6450 Machine Learning
CSCI 6500 Advanced Mathematical Statistics
CSCI 6550 Optimization Theory

Concentration 3: Computer and Cybersystems Security (9 credit hrs.)

CSCI 6600 Advanced Computer Security
CSCI 6650 Network Security
CSCI 6700 Cryptography

Concentration 4: General Computer Science (9 credit hrs.)

Take 3 courses from Concentrations 1, 2 and 3.

Options: Choose one of the following:

a) Thesis Option (6 credit hrs.): Thesis
CSCI 6992 M.S. Research Thesis
b) Non-Thesis Option (6 credit hrs.): Take 2 courses out of the courses in other concentrations or electives.

Electives Courses:

CSCI 6750 Secure Software Development
CSCI 6970 Special Topics in Computer Science (existing course)
CSCI 6924 Computer Science Internship

Total credits to graduate: 33 credit hrs.

Summary:

	Thesis	Non-Thesis
Credit hours required core courses	18	18
Credit hours required in concentration	9	9
Credit hours required in support courses or electives	NA	6
Credit hours for thesis or dissertation	6	NA
Total credit hours required for completion	**33**	**33**

2. Will this program be related to other programs at your institution?

If so, which ones and how?

The B.S. in Computer Science program at AUM is closely related to the proposed M.S. program in Computer Science. Currently there are 149 students enrolled in the B.S. in computer Science program. Our recent survey shows that 56% of those students are interested in enrolling in the M.S. program at AUM. The Bachelor degree program provides a natural feeder to the proposed M.S. program.

Furthermore, the M.S. in Cybersystems and Information Security (CSIS) program at AUM is also closely related to the proposed M.S. program in Computer Science. The Computer and Cybersystems Security track of the proposed new program shares one course, “Cryptography” with the existing CSIS program.

Faculty resources and faculty teaching in the existing B.S. in Computer Science program and the CSIS master degree program will be shared with the new M.S. in Computer Science program.

3. Please identify any existing program, option, concentration or track that this program will replace at your institution.

The proposed program won’t replace any existing program, option, concentration or track at AUM.

4. Is it likely that this program will reduce enrollments in other graduate programs at your institution? If so, please explain.

No. There is no risk of reducing the graduate enrollment in other programs. The uniqueness of the program attracts qualified students with interest in the broad area of Computer Science. The proposed program targets graduates of the B.S. programs in Mathematics, Computer Science or Information Systems. There are no graduate programs in Mathematics and Computer Science currently at AUM. Although there is an M.S. degree in Management Information Systems at AUM, its emphasis in management is clearly distinctive than the emphasis in science of the proposed M.S. degree in Computer Science.

5. If this is a graduate program, please list any existing undergraduate programs at the institution which are directly or indirectly related to the proposed graduate program. If this is a doctoral proposal, also list related master's programs at your institution.

Undergraduate programs related to the proposed graduate program:

B.S. in Computer Sciences
B.S. in Mathematics
B.S.B.A. in Information Systems

6. Please complete the table below indicating the proposed program's courses. Include the course number, and number of credits. (If feasible/useful, please group courses by sub-headings within the table.)

Course Number and Title	Number of Credit Hours	* If New Course
CSCI 6000: Algorithms Design and Analysis	3	*
CSCI 6050: Software Engineering	3	*
CSCI 6070: Advanced Database Systems	3	*
CSCI 6150: Operating Systems	3	*
CSCI 6170: Advanced Network Systems	3	*
CSCI 6250: Computer Architecture	3	*
CSCI 6300: Advanced High Performance Computing	3	*
CSCI 6350: Distributed Systems	3	*
CSCI 6400: Advanced Data Intensive Computing	3	*
CSCI 6450 Machine Learning	3	*
CSCI 6500 Computational Statistics	3	*
CSCI 6550 Optimization Theory	3	*
CSCI 6600 Advanced Computer Security	3	*
CSCI 6650 Network Security	3	*
CSCI 6700 Cryptography	3	*
CSCI 6992 M.S. Research Thesis	6	*
CSCI 6750 Secure Software Development	3	*
CSCI 6970 Special Topics in Computer Science (existing course)	3	
CSCI 6924 Computer Science Internship	1~4	*

7. Enumerate and briefly describe any additional requirements such as preliminary qualifying examination, comprehensive examination, thesis, dissertation, practicum or internship, some of which may carry credit hours included in the list above.

None.

8. Does the program include any options/concentration. If so, please describe the purpose and rationale and list the courses in the option.

The program requires students to complete 33 credit hours to graduate. In addition to 6 core courses (18 credit hours), students can choose one of the following four options: a) General Computer Science, b) High Performance Computing, c) Data Analytics, and d) Computer and Cybersystems Security. Within each of these options, students can choose to complete a thesis or opt for extra coursework. The offered options provide wide flexibility to students. The thesis-option provides students opportunities to conduct research with faculty. Moreover, the proposed M.S. in Computer Science is different from other programs offered in the state due to two options: High Performance Computing and Data Analytics, which are not similar to any other program. High Performance Computing and Data Analytics are unique options/concentrations for an M.S. in Computer Science program in the state of Alabama.

Concentration 1: High performance Computing (HPC) (9 credit hrs.)

CSCI 6300 Advanced High Performance Computing
CSCI 6350 Distributed Systems
CSCI 6400 Advanced Data Intensive Computing

Concentration 2: Data Analytics (9 credit hrs.)

CSCI 6450 Machine Learning
CSCI 6500 Computational Statistics
CSCI 6550 Optimization Theory

Concentration 3: Computer and Cybersystems Security (9 credit hrs.)

CSCI 6600 Advanced Computer Security
CSCI 6650 Network Security
CSCI 6700 Cryptography

Concentration 4: General Computer Science (9 credit hrs.)

Take 3 courses from Concentrations 1, 2 and 3.

Options: Choose one of the following:

a) Thesis Option (6 credit hrs.): Thesis
CSCI 6992 M.S. Research Thesis

b) Non-Thesis Option (6 credit hrs.): Take 2 courses out of the courses in other concentrations or electives.

Total credits to graduate: 33 credit hrs.

9. State and list if the program has any special admission requirements. If none, state: "The program has no special admission requirements".

Admission requirements include a B.S. degree in a related field (Mathematics, Computer Science, Engineering, Information Systems), GRE general test, and undergraduate transcripts (GPA). Minimum background includes the following undergraduate courses or equivalent: Programming proficiency, Algorithms, Operating Systems and Mathematics proficiency. However, if the minimum background needed to succeed in this program is not met, appropriate pre-requisite courses will be recommended.

H. Program Review and Assessment

In the final analysis, the institution and its governing board are accountable for the quality, utility and productivity of this and all other programs of instruction.

With this in mind, please describe the procedures that will be used in assessing the program's outcomes.

Be sure to include:
1. An assessment process for the student learning outcomes;

At the university level the program will be required to participate in Academic Program Review every 5 years along with annual assessment reviews. The Academic Program Review functions to collect information in the following categories:

- Program mission and goals
- Program admission and retention
- Overall program assessment
- Curricular offerings
- Assessment of faculty
- Assessment of facilities and equipment
- Community engagement
- Strategic Planning

Particularly, the program will be reviewed in the following areas:

1) Student Performance

The program will have an academic advisor, who will monitor student progress and performance, giving timely advising for corrections and improvements. There will be written admission policies for new and transfer students. Failure rates will monitored for each class through a data repository on AUM's sharepoint.

2) Student Learning and Operational Outcomes

Student learning and operational outcomes will be assessed on an annual basis using an exit comprehensive exam. This exam will be written and/or oral covering the learning outcomes proposed for the program. We will document the results and plan actions for improvement.

2. A follow-up plan to determine accomplishments of graduates such as obtaining relevant employment or being admitted to a masters or doctoral program (graduate or professional).

Additionally, the following actions will be performed for determining accomplishments of students graduating from this program:

- Each student will be asked to complete a survey at the end of their last semester. This survey will collect student feedback for determining the strengths and areas in need of improvement of the program from the student perspective.

- Students will be surveyed after 2 and 5 years post graduation. The survey will inquire both graduates and their employers to determine if the program is adequately preparing graduates to meet job demands.

I. Accreditation

If there is a recognized (USDE or CHEA) or other specialized accreditation agency for this program, please identify the agency and explain why you do or not plan to seek accreditation. If there is no accrediting or similar body for this degree program state as such in your response.

Specialized accreditation will not be sought.

J. Instructional Delivery Method

1. Describe which instructional delivery methods will be utilized in delivering this program.

The instructional delivery method will be the traditional face-to-face delivery method. Full distance education is not currently under consideration. Some courses will be delivered online and/or in a hybrid mode (online and face-to-face). However, in the future we will explore the possibility of a high quality fully-online program. This will need some extra planning and analysis as well as resources and training.

2. If distance technology is being utilized, indicate an approximate percent of the total program's courses offered that will be provided by distance education____0___ %

0%-10%

3. If distance education is not being utilized, please explain why not.

See above.

K. Resource Requirements

1*. Faculty.* Do not attach the curriculum vitae of each existing or additional faculty members to this proposal. (The institution must maintain and have current and additional primary and support faculty curriculum vitae available upon ACHE request for as long as the program is active.) *Please do provide a brief summary of Faculty and their qualifications specific to the program proposal.*

Five full-time doctorally prepared faculty are available for the proposed program and they all have graduate teaching status at AUM and have taught in the existing Cybersystems and Information Security (CSIS) graduate program or have taught Computer Science courses. The faculty include those with experience as computer scientists or applied mathematicians, all of whom are academically and experientially prepared for the faculty positions they hold. Examples of faculty research and areas of interest include the following: high performance computing, computer vision, robotics, computer graphics, image processing, machine learning and data mining, computer security, large-scale data analysis, theory of formal languages and algorithm analysis.

The following faculty bios come from those faculty members currently in the Department of Mathematics and Computer Science at AUM who are expected to teach in the proposed program.

Dr. Luis Cueva-Parra
Dr. Cueva-Parra has a Ph.D. in Scientific Computing, an M.S. in Industrial Mathematics and a B.S. in Mechanical Engineering. He is Associate Head and an Associate Professor and has experience teaching Computer Science courses including Introduction to Computer Science, Structured Programming I and II (both Java and C++ based), Software Components, Unix and C, Parallel Programming, High Performance Computing, Ethics in Computer Science, Operating Systems, Mobile Computing, Senior Seminar in Computer Science, and Computer Science Internship. His research agenda is focused on the study of complex physical/chemical phenomena using modern mathematical and computational techniques. His main areas of research interests are High Performance Scientific Computing, Numerical Analysis, Computational Science and Engineering, and Mathematical Modeling and Simulation. He has industrial experience as a Software Engineer Assistant.

Dr. Semih Dinc
Dr. Semih Dinc has a Ph.D. in Computer Science, an M.S. in Control Engineering, and a B.S. in Computer Engineering. He is an Assistant Professor and has experience teaching Computer Science courses including Introduction to Computer Science, Structured Programming I and II, Switching Theory, Computer Architecture, and High Performance Computing. His research interests are Computer Vision, Robotics, Computer Graphics, Image Processing, Machine Learning, and Data Mining. In particular, his research is focused on developing a novel vision based localization technique for unmanned vehicles.

Dr. Enoch Lee
Dr. Lee has a Ph.D. in Mathematics, an M.S. in Mathematics, and an M.S. in Computer Science. He is an Associate Professor with experience teaching Computer Science courses including Structured Programming I and II, Fund. Algorithm Design and Analysis, and Theory of Formal Languages. His mathematical research interests include rings, modules, near-rings, semigroups, universal algebra, radical theory, number theory, cryptology, and coding theory. He has done research on Voice over IP (VoIP), streaming audio and video, Internet applications traffic characteristics, (G)MPLS, etc. He is also interested in applying computing technology such as distributed computing (as a form of high performance computing) in solving mathematical problems. He was also a wireless engineer specializing in IP traffics. Later he became an optical network system engineer, specializing in MultiProtocol Label Switching (MPLS) control plane.

Dr. Babak Rahbarinia
Dr. Babak Rahbarinia has a Ph.D. in Computer Science, an M.S. in Computer Engineering - Software, and a B.S. in Computer Engineering - Software. He is an Assistant Professor and has experience teaching Computer Science courses including Algorithm Analysis and Design, Data Structures, Operating Systems, Database Systems, Network Systems, Distributed Computing, Introduction to Computer Security, Data Communication and Networks, Special Topics - Cyber Security, and Special Topics - Research in Security. His research interests are Computer Security, Machine Learning, and Large-scale Data Analysis. In particular, his research is focused on designing large-scale behavioral models and developing technologies to enable the analysis and detection of advanced cyber-threats.

Dr. Robert Underwood
Dr. Underwood has a Ph.D. in Mathematics, an M.S. in Mathematics, an M.S. in Mathematics Education, and a B.S. in Computer Science/Mathematics. He is a Professor and has experience teaching the course Applied Cryptology. His research interests concern the classification of Hopf algebra orders in group rings and the application of Hopf orders to Galois module theory and the theory of formal groups. Some of his research work is related to theoretical Computer Science such as the Theory of Formal Languages and Algorithm Analysis.

a) Please provide faculty counts for the proposed program:

Status	Faculty Type	
	Primary	Support
Current- Full Time	3	
Current-Part Time		2
Additional-Full Time (to be hired)	2	
Additional-Part Time (to be hired)		

b) Briefly describe the qualifications of new faculty to be hired.

New faculty members for the M.S. in Computer Science program will have a Ph.D. degree in Computer Science or in a very closely related field. The preferred expertise will be in the areas of high performance computing, data analytics, and cybersecurity. They will have a strong record of or outstanding potential for excellence in teaching and significant research. Additionally, they will have a commitment to service at both departmental and university levels, and will possess effective oral and written communication skills.

2. Equipment. **Will any special equipment be needed specifically for this program?**

[X] Yes [ ] No

If "Yes", please list:

The following are the equipment needs for the program:

- Equipment for a new Linux-based classroom lab (software and hardware considered) will be acquired. It consists of 25 new computers at approx. $20,000 (25 * $800). No commercial software will be needed and most of the required software is open source and free (currently available). This classroom/lab can be shared with the M.S. in Cybersystems and Information Security.
- A security-networking lab will be implemented. (Approx. $8000)

Additional access to computing resources will be obtained by coordinating with Alabama Supercomputing Authority and XSEDE (Extreme Science and Engineering Discovery Environment). This will allow access to cluster and supercomputers. XSEDE is a National Science Foundation (NSF) funded cyber-infrastructure including sixteen first class data centers providing supercomputing resources and expertise.

The cost of the new equipment should be included in the table following (Section K.).

3. Facilities. **Will any new facilities be required specifically for the program?**

[ ] Yes [X] No

If "Yes", please list. Only new facilities need be listed. Their cost should be included in the table following (Section K.).

4. Library. **Are there sufficient library resources to support the program?**

[X] [ ]

Yes No

Please provide a brief description of the current status of the library collections supporting the proposed program.

Currently, AUM's library has sufficient resources to support the program, however the acquisition of newer books in the areas of Computer Architecture, Data Analytics, High Performance Computing and Cybersecurity will strengthen its support of the proposed program. AUM will spend $ 5,000 for this purpose.

To conduct the assessment of AUM's holdings in Computer Science, AUM examined its holdings in comparison with regional peer institutions, all of which have programs accredited by AACSB, NCATE, and CCNE. These schools were selected because a) they are within the southern region, and b) their curriculum is similar to AUM's. The assessment involved a key word search in each institutions catalog for the topics of Computer Science and software. The AUM Library holds 94.90% of the average holdings of the group, above the minimum goal of 70% of the peer group holdings for graduate courses. Additionally, the library provides access to 57 journal titles, which can support the program. A complete list is available upon request.

If "No", please briefly describe how any deficiencies will be remedied; include the cost in the table following (Section K.).

5. Assistantships/Fellowships. **Will you offer any assistantships specifically for this program?**

[X] Yes [ ] No

If "Yes", how many assistantships will be offered? Be sure to include the amount in the table following.

[3] **Number of assistantships offered**

Be sure to include the cost of assistantships in the table following (Section K.).

We will offer 3 teaching/research assistantships per year at $ 1,000 each.

6. Program Budget **.The proposal projected that a total of** [$698,000.00] **in estimated new funds will be required to support the proposed program.**

A projected total of [$282,256.00] **will be available to support the new program.**

The program will require internal reallocation of monies until a sufficient number of students are enrolling in the program to make it self-sustaining. The relatively new B.S. in Computer Science has far exceeded enrollment expectations and

there are sufficient funds that can be reallocated from the tuition that comes in from the B.S. in Computer Science.

L. New Academic Degree Program Proposal Summary Form

- **In the following "NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY" table, please provide a realistic estimate of the costs of the program.**

- **This should only include the additional costs that will be incurred, not current costs.**

- **Indicate the sources and amounts of funds available for the program's support.**

- **DO NOT LEAVE ANY PORTION/SOURCES OF THE NEW FUNDS OR FUNDS AVAILABLE BLANK. ENTER "$0" IF THERE ARE NO NEW FUNDS NEEDED OR NO FUNDS AVAILABLE.**

- **THERE MUST BE AN ACTUAL DOLLAR AMOUNT PROVIDED FOR TUITION, SINCE THOSE FIGURES REPRESENT PROJECTED ENROLLED STUDENTS.**

- **If it is stated that new funds are requested or if it is a reallocation of resources, please explain directly below from what source(s) the funds for the proposed new program, (e.g. faculty, equipment, etc.) will be attained.**

- **If tuition is used to support the program, what start-up revenue source will be used to initiate the program.**

Also, include enrollment and completer projections.

- **New enrollment headcounts are defined as unduplicated counts across years. For example, if "Student A" would be initially enrolled in the program in year 2, and again is enrolled in the program in years 4 and 5; "Student A" is only counted in the new enrollment headcount in year 2.**

- **Total enrollment headcounts represent the actual number of students enrolled (both part-time and full time each year. This is a duplicated count).**

NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY

INSTITUTION	Auburn University at Montgomery
PROGRAM	M.S. in Computer Science

ESTIMATED NEW FUNDS REQUIRED TO SUPPORT PROPOSED PROGRAM

	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
FACULTY	130,000	130,000	130,000	130,000	130,000	650,000
LIBRARY	5,000	0	0	0	0	5,000
FACILITIES	0	0	0	0	0	0
EQUIPMENT	28,000	0	0	0	0	28,000
STAFF	0	0	0	0	0	0
ASSISTANTSHIPS	3,000	3,000	3,000	3,000	3,000	15,000
OTHER	0	0	0	0	0	0
TOTAL	166,000	133,000	133,000	133,000	133,000	698,000

SOURCES OF FUNDS AVAILABLE FOR PROGRAM SUPPORT

	Year 1	Year 2	Year3	Year 4	Year 5	TOTAL
INTERNAL REALLOCATIONS	139,072	65,680	52,216	25,288	0	282,256
EXTRAMURAL	0	0	0	0	0	0
TUITION	26,928	67,320	80,784	107,712	134,640	417,384
TOTAL	166,000	133,000	133,000	133,000	134,640	699,640

ENROLLMENT PROJECTIONS AND DEGREE COMPLETION PROJECTIONS

Note: "New Enrollment Headcount" is defined as unduplicated counts across years.

	Year 1	Year 2	Year 3	Year 4	Year 5	5-YEAR AVERAGE
FULL TIME HEADCOUNT	4	10	12	16	20	12.4
PART TIME HEADCOUNT	0	0	0	0	0	0
TOTAL HEADCOUNT	4	10	12	16	20	12.4
NEW ENROLLMENT HEADCOUNT	4	6	6	8	9	6.6
DEGREE COMPLETION PROJECTIONS	0	4	4	5	7	AVERAGE 4

References

1. US Department of Labor (https://www.bls.gov/ooh/management/computer-and-information-systemsmanagers.htm)
2. Alabama High Demand Occupations 2012-2022, Alabama Department of Labor (http://www2.labor.alabama.gov/workforcedev/Alabama%20and%20Regional%20Data/Alabama/High%20Demand%20Fast%20Growing%20Declining%20Occupations.pdf)

3. Government Technology (http://www.govtech.com/network/Montgomery-Launches-First-CityOwned-Internet-Exchange-Point-in-Alabama.html)

MONTGOMERY
AREA CHAMBER OF COMMERCE

October 16, 2017

Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, Al 36124

Dear Dr. Wang:

On behalf of Montgomery Area Chamber of Commerce, I am writing this letter to offer our support and encouragement for a Master of Science in Computer Science program at Auburn University at Montgomery (AUM). We understand that AUM is requesting a graduate program to prepare highly qualified professionals in computing industry and education. The program is needed locally in order to prepare graduate-level computer scientists for the growing computer science industry of greater Montgomery, Alabama.

We have enjoyed an excellent relationship with AUM and we know that the graduates of the Department of Mathematics and Computer Science are well prepared for the various enterprises upon graduation. There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of computing industry, such as big data and artificial intelligence.

We are pleased to see that AUM is planning for the future by proposing a master degree program in computer science. A local program is needed so that our staff can attend classes while working full-time and have access to faculty members for advisement and other activities. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area.

As we address issues of quality, excellence and the new challenges of the industry, we welcome the opportunity to support and work with AUM to propose the Master of Science in Computer Science degree program. We know that we will need computer scientists prepared at the graduate level to provide expertise, leadership and maintain the quality standards that are essential for quality work and excellence service.

Thank you for the opportunity to support AUM in order to grow and prepare the graduate computer professionals and educators for the community, state and the nation.

Sincerely,

Randall L. George
President

BUILDING BUSINESS. BUILDING MONTGOMERY AND THE RIVER REGION.

POST OFFICE BOX 79 41 COMMERCE STREET MONTGOMERY, AL 36101
TEL: 334.834.5200 FAX: 334.265.4745 MACC@MONTGOMERYCHAMBER.COM WWW.MONTGOMERYCHAMBER.COM

2108 EAST SOUTH BOULEVARD ■ POST OFFICE BOX 11000
MONTGOMERY, ALABAMA 36191-0001
334/288-3900

Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, Al 36124

November 13, 2017

Dear Dr. Wang

On behalf of the Actuarial Department of Alfa Life Insurance Corporation, I am writing this letter to offer our support and encouragement for establishing a Master of Science in Computer Science program at Auburn University at Montgomery. The program is needed locally in order to prepare graduate-level computer scientists for the computer science industry and the broader community, such as Alfa, the hospitals, and governments in greater Montgomery, Alabama.

There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of tools in the computing industry, such as big data and artificial intelligence. The life insurance industry, as well as the property-casualty insurance industry is devoting a great deal of attention and resources in data analytics. This area will grow for the foreseeable future. After the industry has completed this step, there will undoubtedly be some future, unforeseen developments to advance the industry. Having a graduate program in AUM would position AUM to serve the community with whatever future developments unfold.

A local program is needed so that our staff can attend classes while working full-time and have access to faculty members for advisement and other activities. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area. Alfa already has a sizeable staff working in data analytics. While it is not in my area, I understand that Alfa has developed a working relationship with the University of Alabama in data analytics, and that groups of students have completed projects for Alfa. I see no reason why we might not develop a relationship with AUM.

I have spoken to the AUM Math Club on at least two occasions, and I look forward to continuing my personal relationship with the university. I hope that AUM will be able to step up and better prepare graduate computer professionals and educators for the community, state, and nation.

Sincerely,

Jerry F. Enoch

Jerry F. Enoch, FSA, MAAA
Vice President and Chief Actuary
Alfa Life Insurance Corporation

WATER
WORKS & SANITARY SEWER BOARD
of the City of Montgomery

22 Bibb Street, P.O. Box 1631, Montgomery, Alabama 36102-1631 (334) 206-1600 (334) 240-1616 FAX

October 18, 2017

Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, AL 36124

Dear Dr. Wang:

On behalf of The Water Works and Sanitary Sewer Board of the City of Montgomery, I am writing this letter to offer our support and encouragement for a Master of Science in Computer Science program at Auburn University at Montgomery (AUM). We understand that AUM is requesting a graduate program to prepare highly qualified professionals in computing industry and education. The program is needed locally in order to prepare graduate-level computer scientists for the growing computer science industry of greater Montgomery, Alabama.

We have enjoyed an excellent relationship with AUM and we know that the graduates of the Department of Mathematics and Computer Science are well prepared for the various enterprises upon graduation. There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of computing industry, such as big data and artificial intelligence.

We are pleased to see that AUM is planning for the future by proposing a master degree program in computer science. A local program is needed so that our staff can attend classes while working full-time and have access to faculty members for advisement and other activities. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area.

As we address issues of quality, excellence and the new challenges of the industry, we welcome the opportunity to support and work with AUM to propose the Master of Science in Computer Science degree program. We know that we will need computer scientists prepared at the graduate level to provide expertise, leadership and maintain the quality standards that are essential for quality work and excellence service.

Thank you for the opportunity to support AUM in order to grow and prepare the graduate computer professionals and educators for the community, state and the nation.

Sincerely,

Thomas R. Morgan
General Manager

ALABAMA DEPARTMENT OF
PUBLIC HEALTH

Scott Harris, M.D.
Acting State Health Officer

October 26, 2017

Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, Al 36124

Dear Dr. Wang:

On behalf of Alabama Department of Public Health, Bureau of Information Technology, I am writing this letter to offer our support and encouragement for a Master of Science in Computer Science program at Auburn University at Montgomery (AUM). We understand that AUM is requesting a graduate program to prepare highly qualified professionals in computing industry and education. The program is needed locally in order to prepare graduate-level computer scientists for the growing computer science industry of greater Montgomery, Alabama.

We have enjoyed an excellent relationship with AUM and we know that the graduates of the Department of Mathematics and Computer Science are well prepared for the various enterprises upon graduation. There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of computing industry, such as big data, and artificial intelligence.

We are pleased to see that AUM is planning for the future by proposing a master degree program in computer science. A local program is needed so that our staff can attend classes while working full-time and have access to faculty members for advisement and other activities. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area.

As we address issues of quality, excellence, and the new challenges of the industry, we welcome the opportunity to support and work with AUM to propose the Master of Science in Computer Science degree program. We know that we will need computer scientists prepared at the graduate level to provide expertise, leadership, and maintain the quality standards that are essential for quality work and excellence service.

Thank you for the opportunity to support AUM in order to grow and prepare the graduate computer professionals and educators for the community, state, and the nation.

Sincerely,

Regina L. Patterson

Regina L. Patterson, Director
Bureau of Information Technology

RLP/MS

Physical Address:
The RSA Tower, 201 Monroe Street
Montgomery, AL 36104

alabamapublichealth.gov

Mailing Address:
P.O. Box 303017
Montgomery, AL 36130-3017

SHERLOCK
SMITH & ADAMS
ARCHITECTS / ENGINEERS

October 16, 2017

Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, AL 36124

Dear Dr. Wang:

I am writing this letter on behalf of Sherlock, Smith and Adams, which is an Architectural and Engineering firm located in Montgomery, Alabama. I am writing this letter to offer our support and encouragement for a Master of Science in Computer Science program at Auburn University at Montgomery (AUM). We understand that AUM is requesting a graduate program to prepare highly qualified professionals in computing, industry and education. We believe the program is needed locally in order to prepare graduate-level computer scientists for the growing computer science industry of greater Montgomery, Alabama. Not only will having the Master's program easily available provide an incentive for students to achieve a higher level for this fast growing field, it also means the students do not have to leave Montgomery, and spend their education dollars at another college to achieve a Master's degree.

We have enjoyed an excellent relationship with AUM and we know that the graduates of the Department of Mathematics and Computer Science are well prepared for the various enterprises upon graduation. There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of the computing industry, such as big data and artificial intelligence, and cyber security, which is very important to us.

We are pleased to see that AUM is planning for the future by proposing a master degree program in computer science. Having a local program available so students could attend classes while working full-time would be a big benefit to people with a full-time job that would otherwise not have this opportunity.

As we address issues of quality, excellence and the new challenges of the industry, we welcome the opportunity to support and work with AUM to propose the Master of Science in Computer Science degree program. We believe there is a growing need to have computer scientists prepared at the graduate level to provide expertise, leadership and maintain the quality standards that are essential for quality work and excellent service.

Thank you for the opportunity to support AUM in order to grow and prepare the graduate computer professionals and educators for the community, the state, and the nation.

Sincerely,

Robert E. Snider

Robert E. Snider, PE, CHC, LEED® AP, BD+C
Fellow, Health Facilities Institute
SHERLOCK, SMITH & ADAMS, INC.

SHERLOCK SMITH & ADAMS

3047 Carter Hill Road / Montgomery, Alabama 36111 / Phone (334) 263-6481 / Fax (334) 264-4509 / www.ssainc.com

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Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, AL 36124

October 16, 2017

Dear Dr. Wang

On behalf of Regitar USA, Inc. I am writing this letter to offer our support and encouragement for a Master of Science in Computer Science program at Auburn University at Montgomery (AUM). We understand that AUM is requesting a graduate program to prepare highly qualified professionals in computing industry and education. The program is needed locally in order to prepare graduate-level computer scientists for the growing computer science industry of greater Montgomery, Alabama.

We have enjoyed an excellent relationship with AUM and we know that the graduates of the Department of Mathematics and Computer Science are well prepared for the various enterprises upon graduation. There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of computing industry, such as big data and artificial intelligence.

We are pleased to see that AUM is planning for the future by proposing a master degree program in computer science. A local program is needed so that our staff can attend classes while working full-time and have access to faculty members for advisement and other activities. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area.

As we address issues of quality, excellence and the new challenges of the industry, we welcome the opportunity to support and work with AUM to propose the Master of Science in Computer Science degree program. We know that we will need computer scientists prepared at the graduate level to provide expertise, leadership and maintain the quality standards that are essential for quality work and excellence service.

Thank you for the opportunity to support AUM in order to grow and prepare the graduate computer professionals and educators for the community, state and the nation.

Sincerely,

Dr. Y.T. Tsai
President and CEO
Regitar USA, Inc.

DUNN TRAINING MENTORING CONSULTING

Microsoft GOLD CERTIFIED Partner

Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, Al 36124

October 16, 2017

Dear Dr. Wang

On behalf of DUNN Training and Consulting, Inc., I am writing this letter to offer our support and encouragement for a Master of Science in Computer Science program at Auburn University at Montgomery (AUM). We understand that AUM is requesting a graduate program to prepare highly qualified professionals in computing industry and education. The program is needed locally in order to prepare graduate-level computer scientists for the growing computer science industry of greater Montgomery, Alabama.

We have enjoyed an excellent relationship with AUM and we know that the graduates of the Department of Mathematics and Computer Science are well prepared for the various enterprises upon graduation. There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of computing industry, such as big data and artificial intelligence.

We are pleased to see that AUM is planning for the future by proposing a master degree program in computer science. A local program is needed so that our staff can attend classes while working full-time and have access to faculty members for advisement and other activities. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area.

As we address issues of quality, excellence and the new challenges of the industry, we welcome the opportunity to support and work with AUM to propose the Master of Science in Computer Science degree program. We know that we will need computer scientists prepared at the graduate level to provide expertise, leadership and maintain the quality standards that are essential for quality work and excellence service.

Thank you for the opportunity to support AUM in order to grow and prepare the graduate computer professionals and educators for the community, state and the nation.

Sincerely,

Mark J. Dunn, President

DUNN Training and Consulting, Inc
4805 Rambling Rose Drive, Cumming, Georgia 30040
Phone: 770 653-6364 Fax: 678 325-7317 Email: mark@dunntraining.com

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MILLENNIA

Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, Al 36124

November 6, 2017

Dear Dr. Wang

On behalf of VALIData Computer & Research Corporation, I am writing this letter to offer our support and encouragement for a Master of Science in Computer Science program at Auburn University at Montgomery (AUM). We understand that AUM is requesting a graduate program to prepare highly qualified professionals in computing industry and education. The program is needed locally in order to prepare graduate-level computer scientists for the growing computer science industry in greater Montgomery, Alabama.

We have enjoyed an excellent relationship with AUM and we know that the graduates of the Department of Mathematics and Computer Science are well prepared for our various enterprises upon graduation. There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of our industry, including big data and artificial intelligence.

We are pleased to see that AUM is planning for the future by proposing a master degree program in computer science. A local program is needed so that our staff can attend classes while working full-time and have access to faculty members for advisement and other activities. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area, as this is Very important!

As we address issues of quality, excellence and the new challenges of the industry, we welcome the opportunity to support and work with AUM to propose the Master of Science in Computer Science degree program. We know that we will need computer scientists prepared at the graduate level to provide expertise, leadership and maintain the quality standards that are essential for quality work and excellence service.

Thank you for the opportunity to support AUM in order to grow and prepare the graduate computer professionals and educators for the community, state and the nation.

Sincerely,

Warren C Philips, President

VALIData Computer & Research Corporation

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(334) 834-2324 ■ (334) 262-5648 (FAX) ■ helpdesk@validata.org

Yi Wang, Ph.D.
Professor/Department Chair
Department of Mathematics and Computer Science
Auburn University at Montgomery
P.O. Box 244023
Montgomery, Al 36124

October 16, 2017

Dear Dr. Wang

On behalf of Structural Wood Systems, I am writing this letter to offer our support and encouragement for a Master of Science in Computer Science program at Auburn University at Montgomery (AUM). We understand that AUM is requesting a graduate program to prepare highly qualified professionals in computing industry and education. The program is needed locally in order to prepare graduate-level computer scientists for the growing computer science industry of greater Montgomery, Alabama.

We have enjoyed an excellent relationship with AUM and we know that the graduates of the Department of Mathematics and Computer Science are well prepared for the various enterprises upon graduation. There is a need for more computer science graduates to be prepared at the graduate level in order to serve the community with the rapid growth of computing industry, such as big data and artificial intelligence.

We are pleased to see that AUM is planning for the future by proposing a master degree program in computer science. A local program is needed so that our staff can attend classes while working full-time and have access to faculty members for advisement and other activities. It will also provide a pathway for the B.S. degree graduates to continue their education locally and not leave the area.

As we address issues of quality, excellence and the new challenges of the industry, we welcome the opportunity to support and work with AUM to propose the Master of Science in Computer Science degree program. We know that we will need computer scientists prepared at the graduate level to provide expertise, leadership and maintain the quality standards that are essential for quality work and excellence service. Even in the wood industry, CNC (computer numerical control) machines are a common place and are rapidly growing more complex. Well educated computer science graduates are of the utmost importance.

Thank you for the opportunity to support AUM in order to grow and prepare the graduate computer professionals and educators for the community, state and the nation.

Sincerely,

Patrick Levy, PE

Chief Engineer – Structural Wood Systems